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IS 2515 (1978): Test chart for guillotine shears [PGD 4: Metal Forming Machines]

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UDC 621·967 : 620·1 (084·3)

(Reaffirmed 2006)

Indian Standard

TEST CHART FOR GUILLOTINE SHEARS

(First Revision)

Metal Forming Machines and Tools Sectional Committee, EDC 72; Machines Subcommittee, EDC 72 : 2 [Ref : Doc : EDC 72 (2569)]

1. Scope — Describes geometrical tests for guillotine shears, and the corresponding permissible deviations with reference to IS : 2063-1962 'Code for testing machine tools'.

1.1 It deals only with the verification of accuracy and applies neither to the testing of running of the machine (vibrations, abnormal noises, electrical equipment, etc) nor to the machine characteristics (capacities, speeds, etc) which shall generally be checked before testing the accuracy.

2. Preliminary Remarks

2.1 To apply these tests, reference shall be made to IS : 2063-1962 especially for installation of the machine before testing, warming up of spindles and other moving parts, description of measuring methods and recommended accuracy of testing equipment.

2.2 The sequence of tests is related to components of the machine and does not define the practical order of testing. In order to make checking or mounting of instruments easier, tests may be carried out in any convenient sequence.

2.3 It is not always necessary, when inspecting a machine, to carry out all the tests described in this standard. It is up to the user to choose in agreement with the manufacturer, only those tests which are of interest to the user, but these tests are to be clearly stated while ordering a machine.

2.4 Whenever alternate methods of testing are suggested, the choice of actual method of testing is left to the manufacturer.

2.5 For the purpose of this standard, various methods of expressing permissible deviation are employed, each having a particular type of application. The methods employed are as follows:

000/000 for deviations of perpendicularity which are ratios.

000 for any length of 000 for deviations of straightness and parallelism; this expression is used in fact for local permissible deviations, the measuring length being obligatory.

000 for 000 for deviations of straightness and parallelism; this expression is used to recommend a measuring length, but in this case the proportionality rule comes into operation if the measuring length differs from those indicated.

3. Testing Instruments — The testing instruments shall be of the approved type and shall be calibrated at a recognized temperature conforming to the relevant Indian Standards.

4. Accuracy Requirements — The tests to be carried out, the instruments required, the maximum permissible deviations and the manner of carrying out the tests shall be as detailed in the test chart.

Adopted 4 May 1978

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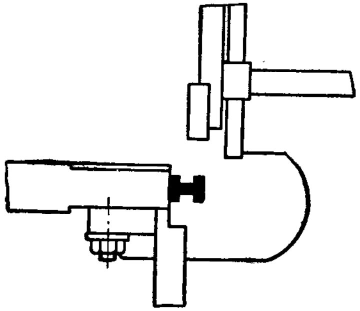
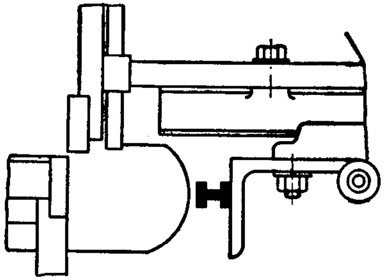
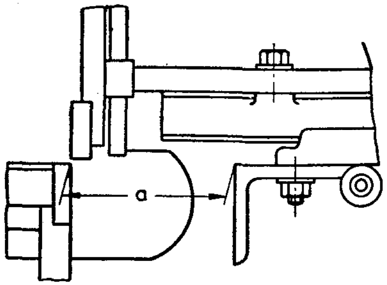
TEST CHART FOR GUILLOTINE SHEARS

TYPE .... CUSTOMER ....

MACHINE NO. .... ORDER NO. .... DATE .... INSPECTOR ....

(All dimensions in millimetres)

Sl No. (1)	Figure (2)	Object (3)	Measuring Instruments (4)	Reference to Cl No. of IS : 2063-1962 and/or Instructions for Testing (5)	Permissible Deviations (6)	Actual Error (7)
1.		Straightness of lower knife bearing surface	Straightedge and feeler gauges	Straightedge placed against the bearing surface of the lower knife, centrally along the length. Error measured by checking the clearances with feeler gauges (a straightedge of at least 2/3 the length of shear should be used)	0·07 for 1 000 length of shear	
2.		Straightness of back gauge angle	Straightedge and feeler gauge	Straightedge placed against the back gauge angle. Error measured by checking the clearances with feeler gauges (a straightedge of at least 2/3 the length of shear should be used)	0·10 for 1 000 length of back gauge angle (surface to be concave only)	
3.		Parallelism of back gauge angle at various positions with reference to lower knife	2 No. equal gauge blocks of approximately 25 mm thick and vernier or inside micrometer of 300 mm range	Back gauge angle set parallel to the lower knife by two gauge blocks kept near the ends of the back gauge angle. Shifted the back guage angle by about 300 mm and brought it slightly forward. Difference of readings at the same points measured with the help of vernier or inside micrometer. **Note** — To be checked in Top Dead Centre position only.	0·1/300 movement of the angle	

4.		Deviation of back gauge angle setting from the reading on readout/indicator dial	Vernier or inside micrometer of suitable range	With back gauge angle touching the lower knife, set the readout/indicator dial to zero. Set one reading on the reading dial of the back gauge and check the corresponding distance (*a*) between the top edge of the lower knife and the back gauge angle	± 0·5 over the entire length of the back gauge	
5.		Repeatability of setting of the back gauge angle	Vernier or inside micrometer of minimum 300 mm range	Set one reading and check as in Test at Sl No. 4 above. Disturb this reading by taking the back gauge angle either to the front or back and set the original reading on dial. Check this as in Test at Sl No. 4 above	± 0·5 over the entire range of back gauge	

EXPLANATORY NOTE

This standard was first published in the year 1963. The revision of the standard was necessitated as some of the requirements in the standard were found out-date and not applicable to the shearing machines being manufactured now.

This revision of the standard covers the essential requirements for the present day shearing machines. The requirements for the shear blades are not covered in this revision, as it is proposed to prepare a separate specification for the same, in due course.

Printed at New India Printing Press Khurja, India